11/14/13 Agenda

- Warm up

- Remediation packet for Chapter 2 is on my web site, you have until 11/15 to get it to me!

- Review Quiz

- Review Homework - Worksheet 3.6 day 1
  Compound Inequalities

- Section 3.6 day 2 - Compound Inequalities (OR)

- Homework - Worksheet 3.6 day 2

Warmup: - Get your Homework out!

- Grab a slip of paper
- Put your name on it

- Distribute & CLT

$$4x - 3(3x-4)$$

$+4x \quad -9x \quad +12$

$-5x+12$

$3x \quad -4$

$-3 \quad -9x \quad +12$

$+4x$
$-9x$
$-5x$

Section 3.6 day 1 - Compound Inequalities (AND) Target 3E

Goal: Solve compound inequalities.

What is a "compound inequality"?

A compound inequality consists of two distinct inequalities joined by the word ***"and"*** or the word ***"or"***.

It is an inequality with more than one restriction.

Example: You've all been to amusement parks and have seen the sign, "You must be at least 54" tall to ride this ride."

$h \geq 54"$

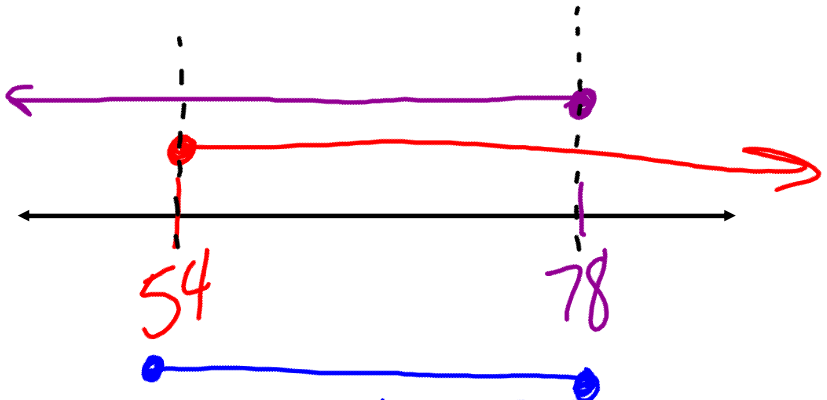
I was at Cedar Point this summer and I saw a ride with an additional restriction. "You can be no taller than 78" to ride this ride."

$h \leq 78"$

$54 \leq h$

How could we write an inequality for this situation?

How could we graph this situation?



$54 \leq h$

$h \leq 78$

$54 \leq h \leq 78$

Section 3.6 day 1 - Compound Inequalities (AND) Target 3E

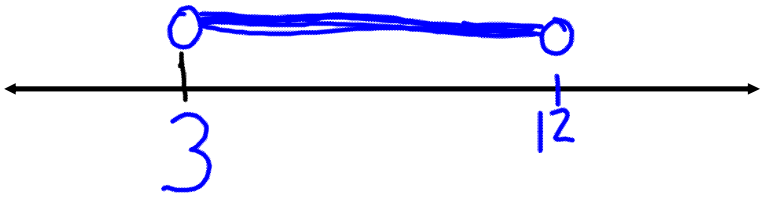
Graphing: Our graph is still a visual (picture) representation of the algebraic problem. You still need to be aware of open and closed circles as well as whether or not to flip your signs (when multiplying or dividing by a negative number).

Example 1: $-2 \leq k$ **AND** $k < 3$

Can be re-written as :

$$-2 \leq k < 3$$

Example 2: $3 < h < 12$



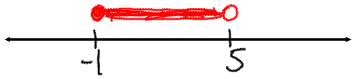
Example 3: $4 < 2h < 10$

Section 3.6 day 1 - Compound Inequalities (AND) **Target 3E**

Example 4: $3 \leq x + 4 < 9$

$-4 \quad -4 \quad -4$

$-1 \leq x < 5$



Example 5: $-9 < h - 4 < -2$

Example 6: $10 < 2h + 2 < 24$

Example 7: $-36 \leq 3p + 6 \leq -15$

$+6 \quad +6 \quad +6$

$\frac{-30}{3} < \frac{3p}{3} \leq \frac{-9}{3}$

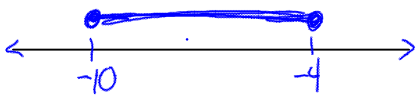
$-10 < p \leq -3$

$10a - 9 \geq -109$ AND $6a + 2 \leq -26$

$+9 \quad +9 \quad +2 \quad +2$

$\frac{10a}{10} \geq \frac{-100}{10}$ $\frac{6a}{6} \leq \frac{-24}{6}$

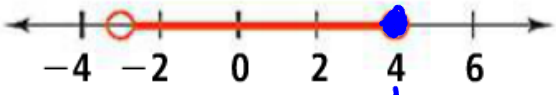
$a \geq -10$ $a \leq -4$



Section 3.6 day 1 - Compound Inequalities (AND) Target 3E

Example 8: Write the inequality

$-2 < x < 6$



$-3 < x \leq 4$

Summary:

- "AND" inequalities are where the two inequalities overlap.
- There are 2 inequality symbols, 1 at each end. They can be different, make sure they are correct.
- Everything we know about inequalities still applies:
  - Open/Closed circles.
  - Flip the sign when multiplying or dividing by a negative number.
  - Distribute, Combine Like Terms, Reverse PEMDAS
- Follow solving rules - whatever you do to one side, do to the other.

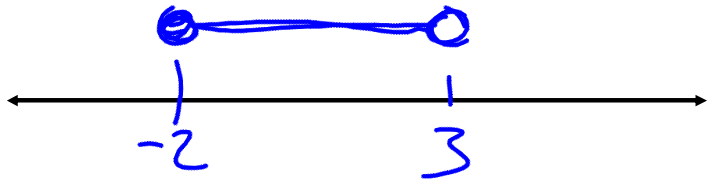
Section 3.6 day 2 - Compound Inequalities (OR) Target 3E

Review:

$$-2 \le k < 3$$

Can also be written as:

$$-2 \le k \text{ AND } k < 3$$



Compound Inequalities:

A compound inequality consists of two distinct inequalities joined by the word *"**and**"* or the word *"**or**"*.

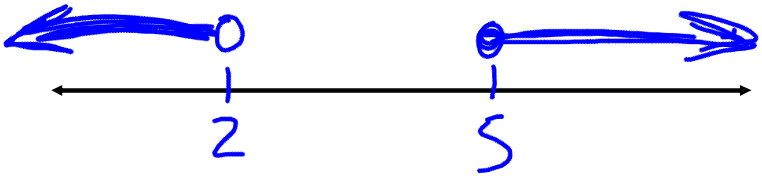
It is an inequality with more than one restriction.

Graphing:

Our graph is still a visual (picture) representation of the algebraic problem. You still need to be aware of open and closed circles as well as whether or not to flip your signs (when multiplying or dividing by a negative number).

Example 1:

$$x < 2 \quad \textbf{or} \quad x \ge 5$$



Example 2:

$$x \le -4 \quad \textbf{or} \quad x > 2$$

Section 3.6 day 2 - Compound Inequalities (OR) **Target 3E**

Example 3:

$x > 3$ **or** $-2 > x$

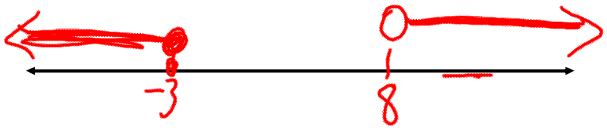
We can solve too!

Example 4:

$2x \le -6$ **or** $x + 7 > 15$

$\frac{2x}{2} \le \frac{-6}{2}$ $\quad$ $\frac{-7}{x} > \frac{-7}{8}$

$x \le -3$



Example 5:

$x + 3 < -2$ **or** $2x - 3 > 11$

You Try!

Example 6:

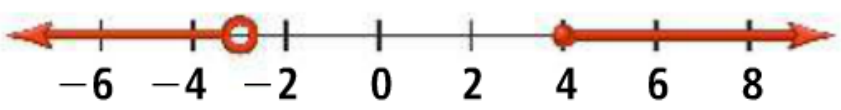
$3x < 9$ **or** $x - 2 > 5$

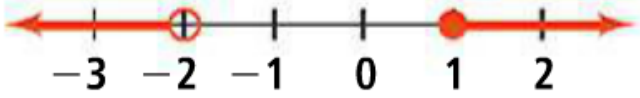
Example 7:

$-2x > 10$ **or** $x - 6 > 7$

Section 3.6 day 2 - Compound Inequalities (OR) Target 3E

Example 8:
Write the inequality





Summary:

- "OR" inequalities do not overlap. They go away from each other on the number line.
- When you solve an inequality, be careful to note wherher it is an ***"and"*** or an ***"or"***.
- There are 2 inequality symbols, make sure they are correct.
- Everything we know about inequalities still applies:
  - Open/Closed circles.
  - Flip the sign when multiplying or dividing by a negative number.
  - Distribute, Combine Like Terms, Reverse PEMDAS
- Follow solving rules - whatever you do to one side, do to the other.